Product Data Sheet

MicroCoat Technologies
http:www.m-coat.com
Unparalleled in Polymer Coatings and Adhesives Technology

Product
MCT MEMS3304

A Very High Conductivity Single Component Adhesive for MEMS Assembly

With over 25,000 hours of rigorous testing and many thousands of hours in actual operation in both Military and Medical Microelectronic Devices, MicroCoat **MEMS 3304,** a 100% solids one part highly Thermally Conductive thermosetting conductive epoxy ***(>11W/mK)*** is designed primarily for screen printing on Silicon, Sapphire, Diamond, and other substrate material for the attachment of MEMS devices to PCB Substrates and attaching large or very small die with mismatched thermal expansions in Military, Medical, optoelectronics, and automotive sensors, etc. It is 100% solids, and posses' good handling and storage properties. This silver-filled conductive die attach adhesive is designed to bond ICs and components to advanced substrates such as ceramic, PBGAs, CSPs, LCP, and array packages with *virtually no bleed*. Hydrophobic and stable at high temperatures, the adhesive produces a void-free bond line with excellent interfacial adhesion strength to a wide variety of organic and metal surfaces including solder mask, BT, FR4, LCP, polyimide, gold, Kapton and Mylar. This material is formulated to provide high cohesive energy, adhesive strength, *stress absorbing for large die*, and elongation at break. Short term at >300^{o}C (2-3 minutes for Pb free reflow) if cured at 150^{o}C for 60 minutes

Composition Properties

Filler Contents:	85%-88% Silver
Viscosity:	20-35 Kcps @ 10 RPM Brookfield HBT CP51 cone and plate.
Thixo Ratio at above viscosity parameters	1.25 – 2.55
Average Particle Size:	<.70 – 1.25 microns

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Typical Cured Properties[2] at Minimum Bond Line of 32 Microns

Volume Resistivity:	<0.000055 Ω-cm
Thermal (Interfacial) Conductivity	11.0 – 11.9 W/mK
T_g ^{o}C	260
CTE Below Tg in/in^{o}C	21.0X10^{-6}
Above Tg in/in^{o}C	32X10^{-6}
Die Shear Kg (150C 1 hour cure)	>9.7 @ RT (>4.6 @ 150C)
Die Shear Kg (150C 1 hour cure)	>9.46 after 200C assembly operation
Die Shear Kg (150C 1 hour cure)	>9.05 after 280C assembly operation (Eutectic component attach)
Shore "D" Hardness	75 - 80
Post Cure Ionics 883/5011.3.8.7	**Cl=<6ppm, Na+=<3.3ppm, K+=<1.1ppm**
Teflon Flask 5 gm sample using 20-40 mesh, 50 gm DI H_2O, 100^{o}C for 24 hours	
Modulus:	
@65C =	5595 MPa;
@25C =	5510 MPa;
@150C =	925 MPa;
@250C =	310 MPa

Processing Procedures: Mixing: The material should be lightly stirred prior to use if used from a jar. Not required if in a syringe.

Application: The material may be applied by screen or stencil printing or syringe dispense. **Curing:** Cure at 150^{o}C for 60 minutes. Optimum conditions will vary depending upon application and will need to be determined experimentally. Alternate cure schedule is 2-3 hours at 80^{o}C - 125^{o}C depending on substrate.

Storage MicroCoat MEMS 3304 should be stored in sealed containers away from heat or flames. It has a shelf life of 7-9 days at a storage temperature of 25^{o}C, 4-6 months at -10^{o}C or 9-12 months at -40^{o}C.

DO NOT STORE AT TEMPERATURES BELOW -40^{o}C. Material ***may*** be returned to refrigerator/freezer after using partial syringes or jars.

Packaging: 3cc and 10cc syringes. **Shipping:** Product is shipped FedEx overnight only in Styrofoam Freezer Packs - Monday – Thursday only in the US and Monday only to Europe or Asia.

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